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Week 4 Report – February 8 through February 15, 2008
Accessible Incontinence Control Device
Team 8

Work Completed

The stretch sensor arrived and was tested by myself and Yamalia this past week to determine the resistance at different lengths. Values were obtained for quarter inch increments from 4 to 7.75 inches. The micro pumps were also primed and tested. We found that reversing voltage supplied to the pump does not reverse the flow direction, it only decreases the efficiency.

I continued to work on the microprocessor code that will control the status indication and the micro pumps of the implanted unit. The code controlling the micro pumps is basically complete, but we still need to figure out the hardware configuration we will be using to hook the pumps up. The pumps probably draw too much current to use simple transistors to switch their power (which will be provided by a battery) on and off. Once the urine collection bag arrives I will be able to finish the status indication code. All the code is done in BASIC.

I also did research on the ACODE-300 wireless transceivers we will be using in our device. Because the transceivers operate at 3.3V and our microprocessor can only output 5V we will need to control the voltage using a circuit. Figure 1 below shows a sample of how to regulate voltage for the ACODE. (This diagram was taken from the user manual for the ACODE-300).

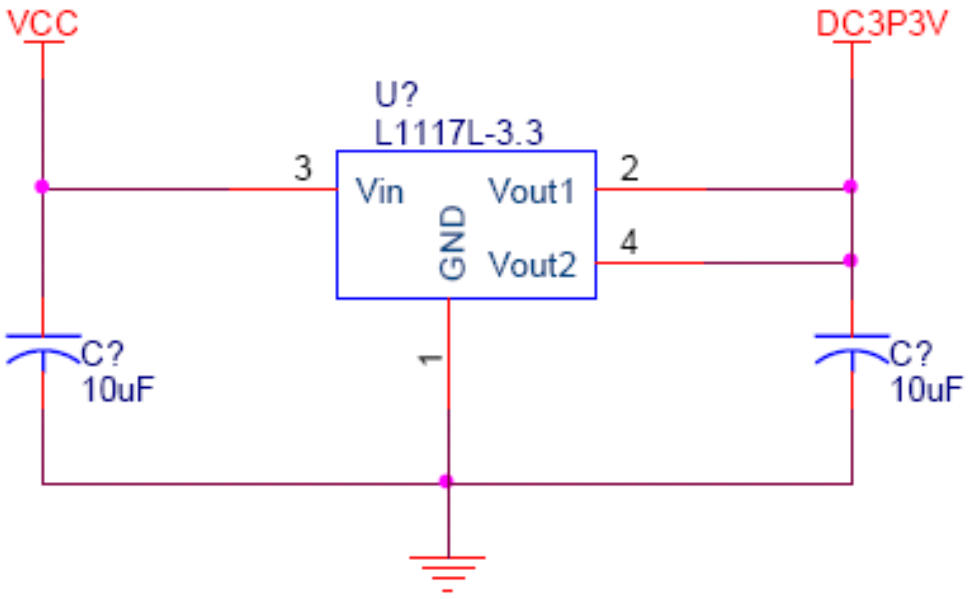

Fig. 1

Future Work

My tasks for the coming week will focus on the wireless communication of our device and modifying the code I have already written for the microprocessor. I need to figure out how to connect the ACODE to the CUBLOC as a serial output. In the coming week our group will also be trying to get the wireless transceivers to communicate with one another.

I also need to modify the code written to perform scans of bladder status. Once this scan is performed the value should be stored in a memory bank where it can be retrieved if the user wants to know how full their bladder is. This will prevent the device from having to do its regular scan at set time intervals and an additional scan when the user wants to know their status. I also need to put a table for resistance/AD values into the code for the status indication.

Project Review

Progress is being made at a steady pace on the Accessible Incontinence Control Device. Once the urine collection bag comes in and we can set up our test set-up we expect to be able to make more progress. So far we have not had any major set-backs since the early weeks of the semester. Once Zack and I finish generating our code it should be relatively straightforward to build the device and compile everything together.

Right now for the work I am doing the control of the micro pumps and the getting the wireless to work are of higher priority than the status indication subunit.

Hours Worked

I spent about 12.5 hours working on the project this week. In the coming weeks my group will need to start going to the senior design lab on Saturdays as well as during the week and this will increase the number of hours spent per week on the project.